

7. REGULATIONS AND ADVISORIES

The international, national, and state regulations and guidelines regarding lead in air, water, and other media are summarized in Table 7-1.

ATSDR has not derived MRLs for lead. The EPA has not developed a reference concentration (RfC) for lead. EPA has also decided that it would be inappropriate to develop a reference dose (RfD) for inorganic lead (and lead compounds) because some of the health effects associated with exposure to lead occur at blood lead levels as low as to be essentially without a threshold (IRIS 1999).

EPA has assigned lead a weight-of-evidence carcinogen classification of B2, which indicates that lead is a probable human carcinogen (IRIS 1999). The International Agency for Research on Cancer (IARC) has determined that there is sufficient evidence from animal studies to classify lead and some lead compounds as possibly carcinogenic to humans; group 2B (IARC 1987). The evidence relevant to carcinogenicity from studies of human exposures to lead and some lead compounds is inadequate to permit conclusions regarding the presence or absence of a casual association (IARC 1987). The IARC has determined that organolead compounds are not classifiable as to their carcinogenicity to humans; group 3 (IARC 1987). The American Conference of Governmental Industrial Hygienists (ACGIH) has categorized elemental lead and certain inorganic lead compounds, assessed as lead, as A3 carcinogens: carcinogenic in experimental animals at a relatively high dose not considered relevant to worker exposure. The data obtained from epidemiologic studies suggest that, except for uncommon routes or levels of exposure, these substances are unlikely to cause cancer in humans (ACGIH 1998). The ACGIH has categorized lead chromate, assessed on the basis of both lead and chromium, as an A2 carcinogen. Although substances in this category are carcinogenic in experimental animals at dose levels that are considered relevant to worker exposure, the data from epidemiologic studies are insufficient to confirm an increased risk of cancer in exposed humans (ACGIH 1998).

OSHA requires employers of workers who are occupationally exposed to a toxic or hazardous substance to institute engineering controls and work practices that maintain or reduce their exposure to a level that is at or below the permissible exposure limit (PEL) established for the substance. For occupational exposures to lead, the employer must use engineering controls and work practices to achieve an occupational exposure of $50 \mu\text{g}/\text{m}^3$ (0.006 ppm) or lower, based on an 8-hour time-weighted average (TWA) (OSHA 1995). When employee exposures to lead can not be maintained at or below $50 \mu\text{g}/\text{m}^3$ through engineering and

7. REGULATIONS AND ADVISORIES

work practice controls, the employer is required to provide the employees with respirators as a means of supplemental control. The specifications for different types of respirators and the conditions for their use are provided in the Code of Federal Regulations at 29 CFR 1910.1025. OSHA specifies $30 \mu\text{g}/\text{m}^3$ of air as the action level for employee exposure to airborne concentrations of lead (OSHA 1995). Under the requirements for medical surveillance and biological monitoring, the blood lead level of employees exposed to lead above the action level for more than 30 days per year must be determined at least every 6 months. The frequency for sampling an employee's blood for lead levels increases to every 2 months if the results of his previous blood analysis indicated a blood lead level at or above $40 \mu\text{g}/\text{dL}$ (OSHA 1995). OSHA requires continuing the 2-month sampling scenario until the employee's blood lead level measures below $40 \mu\text{g}/\text{dL}$ for 2 consecutive samplings. If an employee is working in an area where exposure to lead is at or above the action level, and the employee's periodic blood test or a follow-up test indicates a blood lead level at or above $50 \mu\text{g}/\text{dL}$, the employer is required to remove the employee from that work area (OSHA 1995). The relocation of an employee may also be instituted if the average of the 3 most recent blood tests or the average of all blood tests given over the most recent 6 month period indicates a blood lead level at or above $50 \mu\text{g}/\text{dL}$. If however, the last single blood test taken during this period indicates a blood lead level at or below $40 \mu\text{g}/\text{dL}$, relocation of the employee may not be required (OSHA 1995). Except for the construction industry and certain aspects of the agricultural industry, more detailed requirements for limiting all occupational exposures to lead, including shipyard employment (OSHA 1996), can be found in 29 CFR 1910.1025 (OSHA 1995). On May 4, 1993, OSHA published an interim final rule which reduced the permitted level of occupational exposure to lead for construction workers from an 8-hour TWA of $200 \mu\text{g}/\text{m}^3$ to an 8-hour TWA of $50 \mu\text{g}/\text{m}^3$ (OSHA 1993). As with other industries, the action level for occupational exposure to lead in the construction industry is $30 \mu\text{g}/\text{m}^3$ (OSHA 1998). More detailed requirements for protecting construction workers from occupational exposures to lead can be found in 29 CFR 1926.62 (OSHA 1998).

The EPA regulates lead under the Clean Air Act (CAA) and has designated lead as a hazardous air pollutant (HAP). The major stationary source categories for which lead emissions are controlled in accordance with promulgated performance standards are secondary lead smelters (EPA 1977), primary copper smelters (EPA 1976a), primary lead smelters (EPA 1976b), glass manufacturing plants (EPA 1980a), lead-acid battery manufacturing (EPA 1982a), metallic mineral processing plants (EPA 1984a), and the synthetic organic chemicals manufacturing industry (EPA 1983b, 1990a, 1993a, 1994f).

7. REGULATIONS AND ADVISORIES

In the early 1970s, after determining that lead additives would impair the performance of emission control systems installed on motor vehicles and that lead particle emissions from motor vehicles presented a significant health risk to urban populations, the EPA began regulating the lead content in gasoline (EPA 1996f). In 1973, EPA instituted a phase-down program designed to minimize the lead content of leaded gasoline over time. By 1988, the total lead usage in gasoline had been reduced to less than 1% of the amount of lead used in the peak year of 1970 (EPA 1996f). The EPA defined unleaded gasoline as gasoline produced without the use of any lead additive and containing not more than 0.05 g of lead per gallon and not more than 0.0005 g of phosphorous per gallon. The 0.05 g criterion was allowed because EPA determined that this maximum trace level would provide adequate protection for catalyst emission control devices (i.e., prevent deterioration in emission control systems) and would be practicable for the petroleum industry. In 1990, Congress added Section 211(n) to the CAA and provided that after December 31, 1995, it would be unlawful to offer, sell, dispense, or transport, for use as fuel in any motor vehicle any gasoline which contains lead or lead additives. The effective date for this prohibition was January 1, 1996 (EPA 1996f). On February 2, 1996, the EPA published a direct final rule revising its regulation for consistency with the CAA prohibitions; however, EPA's definition of unleaded gasoline still allowed the sale of gasoline containing trace amounts of lead up to 0.05 g per gallon. The current definition, however, expressly prohibits the use of any lead additive in the production of unleaded gasoline. The term "lead additive" was defined to include pure lead as well as lead compounds (EPA 1996f).

Lead is regulated by the Clean Water Effluent Guidelines and Standards which are promulgated under the authority of the Clean Water Act (CWA). The regulations provide limitations on pollutant concentrations in wastewater discharges from point source categories and represent the degree of reduction in pollutant concentration that is attainable through demonstrated technologies for new and existing sources. The regulations also provide standards of performance for new sources, and pretreatment standards for new and existing sources. The effluent limitations establish the maximum discharge of pollutants allowed for 1 day and for a monthly average. The regulated point source categories include iron and steel manufacturing (EPA 1982d); nonferrous metals manufacturing (EPA 1984b); steam electric power generation (EPA 1982e); pesticide chemicals (EPA 1978b); battery manufacturing (EPA 1984e); copper forming (EPA 1983b); metal molding and casting (EPA 1985h); and nonferrous metals forming and metal powders (EPA 1985i). For some processes applicable to point source subcategories (such as secondary aluminum smelting, primary lead production, and primary zinc production) lead has a zero discharge limitation (EPA 1984b). Lead has a "no-detectable-amount" criterion for the steam electric power generating point source (EPA 1982e). The CWA establishes the basic structure for regulating the discharge of pollutants to

7. REGULATIONS AND ADVISORIES

waterways and is designed to ensure that all waters are sufficiently clean to protect public health and/or the environment. However, if waters and their sediments become contaminated from sources such as atmospheric deposition and discharges from industrial, municipal, or agricultural operations, toxic substances could concentrate in the tissue of fish and wildlife. Advisories have been developed and issued to warn people about the health risks of consuming lead-contaminated fish, shellfish, or wildlife and provide guidance as to the amount of fish or wildlife that can be safely consumed. Each state, Native American Tribe, or U.S. Territory establishes its own criteria for issuing fish and wildlife advisories. A fish or wildlife advisory will specify which waters (lake, rivers, estuaries, or coastal areas) or hunting areas have restrictions. The advisory provides information on the species and size range of the fish or wildlife of concern. The advisory may completely ban eating fish, shellfish, or recommend consumption limits (numbers of fish meals per specified time period) considered to be safe to eat. For example, an advisory may recommend that a person eat a certain type of fish no more than once a month. Advisories may specify the tissues of the fish or wildlife that can be safely eaten or proper preparation and cooking practices to help decrease exposure to lead. The fish or wildlife advisory is typically more restrictive to protect pregnant women, nursing mothers, and young children. Published information in the form of brochures on fish and wildlife advisories is available from state public health departments, natural resources departments, or fish and game departments. Signs may be posted in certain fishing and hunting areas frequently used by recreational fishers and hunters to warn them about specific contamination problems (EPA 1995b). Currently, 10 advisories are in effect in 5 states (Hawaii, Louisiana, Missouri, Ohio, and Tennessee, and one U.S. Territory (American Samoa) restricting the consumption of lead-contaminated fish and shellfish (EPA 1998f). No advisories were issued for wildlife.

In an effort to protect human health by reducing the lead levels in drinking water at consumers' taps to as close to the maximum contaminant level goal (MCLG) of zero, water system authorities are required to: (1) install or improve corrosion control to minimize lead levels at the tap while ensuring that treatment does not cause the water system to violate any national primary drinking water regulation; (2) install treatment to reduce lead in source water entering the distribution system; (3) replace lead service lines when more than 10% of targeted tap samples exceed 0.015 mg/L lead in drinking water if corrosion control and/or source water treatment does not bring lead levels below the lead action level; and (4) conduct public education programs if lead levels are above the action level (EPA 1991a, 1985g).

The EPA also regulates the lead content in hazardous wastes as prescribed by the Resource Conservation and Recovery Act (RCRA). A solid waste may be defined as hazardous if it exhibits any of the four

7. REGULATIONS AND ADVISORIES

characteristics (ignitability, corrosivity, reactivity, and toxicity) used to identify hazardous wastes. A solid waste containing lead or lead compounds may be defined as a hazardous waste if it exhibits the characteristic of toxicity. The waste is said to exhibit the toxicity characteristic if the lead concentration in the extract obtained by subjecting a sample of the waste to the Toxicity Characteristic Leaching Procedure (TCLP) exceeds 5.0 mg/L (EPA 1990c). On December 18, 1998, EPA issued a proposed rule under the Toxic Substances Control Act (TSCA) to provide new standards for the management and disposal of lead-based paint debris generated by individuals involved in abatements, renovations, and demolition of target housing and from lead removal and demolition of public and commercial buildings (EPA 1998a). As a result of the proposed rule and to avoid duplication and inconsistency in the management of lead-based paint debris, EPA also issued on the same day a proposed rule which would temporarily suspend the applicability of the toxicity characteristic to these types of debris (EPA 1998b).

The Lead-Based Paint Poisoning Prevention Act, as amended by the National Consumer Information and Health Promotion Act of 1976, mandates that the use of lead-based paint in residential structures constructed or rehabilitated by any federal agency or with federal assistance in any form be prohibited (HUD 1998). By definition, residential structures include non-dwelling facilities operated by the owner and commonly used by children under 6 years old, such as child care centers. The Act also authorized the Department of Housing and Urban Development (HUD) to promulgate regulations to eliminate lead-based paint from HUD-associated housing built prior to 1978. The regulatory definition of lead-based paint is “any paint or other surface coating that contains lead equal to or in excess of 1.0 mg/cm² or 0.5 percent by weight” (HUD 1997, 1998). For paints manufactured after June 22, 1977, however, Section 501(3) of the Act defines lead-based as any paint where the nonvolatile content contains 0.06% lead by weight. Purchasers and tenants of HUD-associated housing constructed before 1978 must be notified that the dwelling was constructed prior to 1978 and may contain lead-based paint. Information concerning the hazards of lead-based paint, the symptoms and treatment of lead-based paint poisoning, the precautions to be taken to avoid poisoning, and maintenance and removal techniques must also be provided (HUD 1998). The Residential Lead-Based Paint Hazard Reduction Act of 1992 (also known as Title X of the Housing and Community Development Act) requires sellers, landlords and agents to provide the same type of information to potential purchasers or tenants of other “target housing” (i.e., constructed prior to 1978). Exceptions to these requirements include: housing for elderly or disabled persons unless a child younger than 6 years of age is expected to reside in the dwelling; and dwellings without bedrooms such as studio/efficiency apartments, individual room rentals, dormitories, and military barracks (HUD 1998). Title

7. REGULATIONS AND ADVISORIES

IX also mandates a broad range of interrelated lead exposure activities, some of which require inter-agency collaboration.

In addition to HUD, the primary federal agencies responsible for promulgating regulations implementing the mandates of Title X are the EPA, the Department of Health and Human Services (DHHS) and the Department of Labor's Occupational Safety and Health Administration (OSHA). Title X amends the Toxic Substances Control Act (TSCA) by adding Title IV, entitled "Lead Exposure Reduction." Title IV provides the authority for developing standards that reduce lead-based paint hazards in housing and environmental media (EPA 1998a). Section 402 of Title IV requires the EPA to promulgate regulations for accrediting training programs and certification of persons engaging in "lead-based paint activities" such as for lead abatement and renovation. The aim of the ruling is to ensure that individuals conducting these activities are properly trained and certified. The EPA/HUD training and certification program provides for 5 categories of lead-based paint professionals: supervisors, workers, inspectors, risk assessors, and project designers; and 3 categories of activities: inspection, risk assessment and abatement. Section 403 of Title IV requires EPA to develop standards for lead-based paint hazards in most pre-1978 housing and child-occupied facilities and to address by regulation(s) the definition of "lead-based paint hazards," "lead-contaminated dust," and "lead-contaminated soil." On June 3, 1998, EPA issued several proposed standards in a notice of proposed rulemaking. It was proposed that lead-based paint hazards be described as "paint in poor condition" and defined as more than 10 ft² of deteriorated paint on exterior surface areas and more than 2 ft² on interior surface areas (EPA 1998b). The proposed standard for a lead-dust hazard is an average level of lead in dust that equals or exceeds 50 µg/ft² on uncarpeted floors and 250 µg/ft² on interior window sills (EPA 1998b). For soils, an average concentration of 400 ppm/yard was the proposed standard at which the public should be made aware of the risk associated with exposure to lead (EPA 1998b).

Section 404 of Title IV concerns the authorization requirements for state and tribal programs. States and Indian tribes can seek authorization from EPA to implement their own lead training, accreditation, and certification programs. On August 26, 1996, EPA published the final rule establishing the requirements. That state or tribal programs must meet for authorization to administer and enforce the standards and regulations promulgated in accordance with Title IV (EPA 1998e). According to "The Lead Listing" provided by the National Lead Service Providers Listing System, as of July 1, 1998, 22 states have established operational lead programs that actively certify lead service providers. A list of these states is provided in Table 7-1. Local, certified (licensed) lead-based paint inspectors, risk assessor, and laboratories can be located by calling the National Lead Information Center and Clearinghouse (1-800-

7. REGULATIONS AND ADVISORIES

LEAD-FYI [1-800-532-3394]) or through the Internet at <http://www.leadlisting.org> (HUD 1997). The Lead Listing is operated by a private entity for HUD's Office of Lead Hazard Control.

Section 406 of Title IV directs the EPA to develop consumer information concerning the hazards of exposure to lead and procedures to be followed during housing renovations or remodeling. On June 1, 1998, the EPA issued its final rule on the requirements for lead hazard education prior to conducting renovations in target housing (EPA 1998a). It is important to note that while the federal disclosure program requires property owners to make others aware of the potential lead hazards in or on their property, the program does not require the property owner to conduct inspections or risk assessments prior to selling or leasing property. Regulations responding to the mandates of Title IV are codified at 40 CFR 745; Lead-Based Paint Poisoning Prevention In Certain Residential Structures.

Lead also appears on the FDA's list of poisonous and deleterious substances which was established to control levels of contaminants in human food and animal feed. The action levels established for these substances represent limits at or above which the FDA will take legal action to remove the affected consumer products from the market (FDA 1994). The foods for which the FDA has established action levels for lead are fruit beverages (80 µg/kg), and foods packaged in lead-soldered cans (250 µg/kg) (FDA 1994). Lead solders are alloys of metals which contain lead and are used in the construction of metal food cans. The FDA considers any food packaged in containers that use lead in can solders to be adulterated and in violation of the Federal Food, Drug, and Cosmetic Act (FDA 1995). As of February 8, 1996, the FDA considers wine in bottles capped with tin-coated lead foil capsules to be adulterated (FDA 1996). Tin-coated lead foil has been used as a covering applied over the cork and neck areas of wine bottles to prevent insect infestations, as a barrier to oxygen, and for decorative purposes. Because it can be reasonably expected that lead could become a component of the wine, the use of these capsules is also a violation of the Federal Food, Drug, and Cosmetic Act (FDA 1996). The FDA has reviewed several direct human food ingredients and has determined them to be "generally recognized as safe" when used in accordance with current good manufacturing practices. Some of these ingredients contain an allowable concentrations of lead ranging from 0.1 to 10 parts per million (ppm) (FDA 1998).

The Lead Contamination Control Act of 1988 mandates that the Consumer Product Safety Commission (CPSC) (1) require the repair or recall of drinking water coolers containing lead in parts that come in contact with drinking water, (2) prohibit the sale of drinking water coolers that are not lead-free, (3) require that states establish programs to assist educational agencies in testing and remediating lead contamination of drinking water in schools, and (4) require that EPA certify testing laboratories and provide for coordination by the Center for Disease Control and Prevention (CDC) of grants for additional lead

7. REGULATIONS AND ADVISORIES

screening and referral programs for children and infants (Congressional Record 1988a, 1988b). The CPSC has declared paints and similar surface coating having a lead content which exceeds the 0.06% by weight limit to be “banned hazardous products” (CPSC 1977a). Paints and surface coatings with lead concentrations exceeding the 0.06% limit are defined as “lead-containing paint.” Except for applications to motor vehicles and boats, once lead-containing paints are applied to toys or other articles intended for use by children and articles of furniture manufactured for consumer use, these items also become “banned hazardous products” (CPSC 1977a). These products may be exempt from the ban if, at a minimum, the main label on the product includes the single word “Warning” and the statement: “Contains Lead. Dried Film of This Paint May Be Harmful If Eaten or Chewed” (CPSC 1977a).

The CDC determined in 1991 that blood lead levels of $>10 \mu\text{g/dL}$ in children were to be considered elevated (CDC 1991). In its annual publication of threshold limit values (TLVs) and biological exposure indices (BEIs), the ACGIH notes that women of child-bearing age who have blood lead levels exceeding the CDC guideline value are at risk of delivering children with a blood lead levels greater than $10 \mu\text{g/dL}$ (ACGIH 1998). In its report to Congress, NIOSH summarizes occupational exposure information and provides recommendations for workers (NIOSH 1997b).

The ACGIH also notes that if a child’s blood lead level remains elevated, the child may be at increased risk of cognitive deficits (ACGIH 1998). The ACGIH has adopted BEIs for various substances. The BEI for a substance is an industrial hygiene reference value to be used in evaluating potential health hazards. It is important to note that BEIs are guideline values, and that they are not intended for use as measures of adverse effects or for diagnosis of occupational illness (ACGIH 1998). They represent the level of substance most likely to be observed in specimens (e.g., blood or urine) collected from a healthy worker who has been exposed to a chemical at its threshold limit value (TLV). The TLV refers to the airborne concentration of a substance at which nearly all workers may be repeatedly exposed, day after day, without adverse health affects. BEIs apply to 8-hour exposures occurring 5 days per week. The BEI for lead is $30 \mu\text{g/dL}$ (ACGIH 1998). The recommended exposure level (REL) for lead in the air adopted by the National Institute of Occupational Safety and Health (NIOSH) is 0.1 mg/m^3 (NIOSH 1997a). NIOSH also recommends maintaining air concentrations so that worker blood lead remains at less than $60 \mu\text{g/dL}$ (NIOSH 1997a).

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead

Agency	Description	Information	References
<u>INTERNATIONAL</u>			
Guidelines:			
IARC	Carcinogenic classification:		
	Elemental lead and inorganic lead compounds	Group 2B ^a	IARC 1987
	Organolead	Group 3 ^b	
WHO	Drinking water guidelines	0.05 mg/L	WHO 1984
	Blood lead level of concern	20 µg/dL	WHO 1986
<u>NATIONAL</u>			
Regulations:			
a. Air:			
OSHA	Occupational Safety and Health Standards		
	Lead	Yes	29 CFR 1910.1025
	PEL TWA (8-hour average)		OSHA 1978
	inorganic lead action level	0.05 mg/m ³ 0.03 mg/m ³	
	Lead exposure in construction interim final rule was promulgated in 1993	50 µg/m ³	29 CFR 1926.62 OSHA 1998 58 FR 26590 OSHA 1993
EPA OAR	Hazardous Air Pollutants	Yes	Clean Air Act Amendments U.S. Congress 1990
	Standards of Performance for New Stationary Sources		
	Secondary lead smelters— standards for particulate matter		40 CFR 60, Subpart L EPA 1977
	blast (cupola) or reverberatory furnace	<50 mg/dscm (0.022 gr/dscf) <20% opacity	
	pot furnace	<10% opacity	
	Primary copper smelters	Yes	40 CFR 60, Subpart P EPA 1976a
	Primary lead smelters— particulate matter	<50 mg/dscm (0.022 gr/dscf)	40 CFR 60, Subpart R EPA 1976b
	sulfur dioxide	<0.065% by volume	
	opacity	<20%	
	Glass manufacturing plants	Yes	40 CFR 60, Subpart CC EPA 1980a

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	Lead-acid battery manufacturing plants- lead content in gases discharged to the atmosphere from: grid-casting facilities paste-mixing facility three-process operation facility	<0.40 mg/m ³ of exhaust (0.000176 gr/dscf) <1.0 mg/m ³ of exhaust (0.00044 gr/dscf)	40 CFR 60, Subpart KK EPA 1982a
	lead oxide manufacturing facility	<1.0 mg/m ³ of exhaust (0.00044 gr/dscf)	
	lead reclamation facility	<5.0 mg/kg of lead feed (0.101 lb/ton) <4.5 mg/m ³ of exhaust (0.00198 gr/dscf)	
	other lead-emitting operation	<1.0 mg/m ³ of exhaust (0.00044 gr/dscf)	
	affected facilities other than lead- reclamation	0% opacity	
	lead reclamation facilities	<5% opacity	
	Metallic Mineral Processing Plants	Yes	40 CFR 60, Subpart LL EPA 1984a
	Standards of performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry (SOCMI)—chemicals produced by affected facilities (tetra ethyl lead, tetramethyl lead)	Yes	40 CFR 60.489 EPA 1983b
	Standards of Performance for VOC Emissions from SOCMI— distillation operation (tetra (methyl-ethyl) lead, tetramethyl lead)	Yes	40 CFR 60.667 EPA 1990a
	Standards of Performance for VOC Emissions from SOCMI—reactor processes (tetra (methyl-ethyl) lead, tetramethyl lead)	Yes	40 CFR 60.707 EPA 1993a
	National Emission Standards for Hazardous Air Pollutants for Source Categories		
	SOCMI chemicals	Yes	40 CFR 63.106 EPA 1994f
	Regulation of Fuels and Fuel Additives		

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	General provisions--definition of unleaded gasoline	Up to 0.05 g of lead per gallon	40 CFR 80.2 EPA 1973a
	test methods	Yes	40 CFR 80.3 EPA 1982b
	Controls and Prohibitions (40 CFR 80.22)	Yes	61 FR 3832 EPA 1996f
	Reformulated Gasoline—Fuel certification procedures	Yes	40 CFR 80.40 EPA 1994g
	Test Methods for Lead in Gasoline Method 1-Standard method test for lead in gasoline by atomic absorption spectrometry	Yes	40 CFR 80, App. B EPA 1974
	Method 2-Automated method test for lead in gasoline by atomic absorption spectrometry		
	Method 3-Test for lead in gasoline by X-ray spectrometry		
b. Water:			
EPA ODW	Regulated under SDWA of 1986	Yes	FSTRAC 1988
	Action level in drinking water	0.015 mg/L	EPA 1996g
	National Primary Drinking Water Regulations		40 CFR 141.2 EPA 1975
	Definitions	Yes	40 CFR 141.32 EPA 1987b
	Public notification	Yes	40 CFR 141.42 EPA 1990b
	Special monitoring for corrosivity characteristics	Yes	40 CFR 141.43 EPA 1987c
	Prohibition on use of lead pipes, solder, and flux	Yes	40 CFR 141, Subpart I EPA 1991a
	Control of Lead and Copper	Yes	
	National Primary Drinking Water Regulations Implementation		
	Records and reports kept by States	Yes	40 CFR 142.14-142.15 EPA 1976c
	Review of State implementation of regulations for lead and copper	Yes	40 CFR 142.19 EPA 1991b

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
NATIONAL (cont.)			
EPA OW	Designation of Hazardous Substances—List of hazardous substances	Yes	40 CFR 116.4 EPA 1978a
	Guidelines Establishing Test Procedures for the Analysis of Pollutants—Identification of test procedures	Yes	40 CFR 136.3 EPA 1973c
	Designated as a toxic pollutant under Section 307(a)(1) of the Federal Water Pollution Control Act	Yes	40 CFR 401.15 EPA 1979b
	Iron and Steel Manufacturing Point Source Category--BAT, BPT, NSPS, PSES, and PSNS	Yes	40 CFR 420, Subparts B-L EPA 1982d
	Nonferrous Metals Manufacturing Point Source Category--BAT, BPT, NSPS, PSES, and PSNS	Yes	40 CFR 421, Subpart C-H EPA 1984b 40 CFR 421, Subpart I EPA 1985e 40 CFR 421, Subpart P-AB, and AE EPA 1985h 40 CFR 421, Subparts J, K, and M EPA 1984c
	Steam Electric Power Generating Point Source—BAT, NSPS, PSES, and PSNS for 126 priority pollutants	No detectable amount	40 CFR 423, App. A EPA 1982e
	Pesticide Chemicals—Organic pesticide chemicals manufacturing subcategory applicability	Yes	40 CFR 455.20 EPA 1978b

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	BAT and NSPS effluent limitations for priority pollutants for direct discharge point sources that use end-of-pipe biological treatment (total lead)	Yes	40 CFR 455.50, Table 4 EPA 1993e
	BAT and NSPS effluent limitations for priority pollutants for direct discharge point sources that do not use end-of-pipe biological treatment (total lead)	Yes	40 CFR 455.50, Table 5 EPA 1993e
	PSES and PSNS for priority pollutants	Yes	40 CFR 455.50, Table 6 EPA 1993e
	Battery Manufacturing Point Source Category—BAT, BPT, NSPS, PSES, and PSNS for lead subcategory	Yes	40 CFR 461.31-461.35 EPA 1984e
	Metal Molding and Casting Point Source Category—BAT, BPT, NSPS, PSES, and PSNS	Yes	40 CFR 464 EPA 1985 h
	Copper Forming Point Source Category—BAT, BPT, NSPS, PSES, and PSNS for copper forming subcategory	Yes	40 CFR 468.11-468.15 EPA 1983c
	Nonferrous Metals Forming and Metal Powder Point Source Category—BAT, BPT, NSPS, PSES, and PSNS for lead tin-bismuth forming subcategory	Yes	40 CFR 471 EPA 1985i
c. Food:			
FDA	Action Levels for Poisonous or Deleterious Substances in Human Food and Animal Feed—Lead		FDA 1994
	Fruit beverages (juices, nectars, and drinks) packed in lead-soldered cans	80 $\mu\text{g/kg}$	
	Foods (other than fruit beverages) packed in lead-soldered cans	250 $\mu\text{g/kg}$	
	Leaching solution for ceramicware flatware (average of 6 units)	3.0 $\mu\text{g/mL}$	
	Leaching solution for small hollowware (any 1 of 6 units)	2.0 $\mu\text{g/mL}$	
	Leaching solution for large hollowware (any 1 of 6 units)	1.0 $\mu\text{g/mL}$	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	Leaching solution for cups and mugs (any 1 of 6 units)	0.5 µg/mL	FDA 1994
	Leaching solution for pitchers (any 1 of 6 units)	0.5 µg/mL	
	Silver-plated hollowware-products intended for use by adults (average of 6 units)	7.0 µg/mL	
	Product intended for use by infants and children (any 1 of 6 units)	0.5 µg/mL	
	Substances prohibited from indirect addition to human food through food-contact surfaces	Lead solder	29 CFR 189.240 FDA 1995
d. Other:			
CPSC	Paint is declared banned from household use and interstate commerce if the lead content exceeds	0.06% total weight of solids or paint film	CPSC 1973 16 CFR 1500.17 EPA 1973c
EPA OSW	Criteria for Classification of Solid Waste Disposal Facilities and Practices		40 CFR 257, App. I EPA 1993b
	Maximum contaminant levels (MCLs)	0.05 mg/L	
	Criteria for Municipal Solid Waste Landfills		40 CFR 258.40 EPA 1993d
	Maximum contaminant levels (MCLs)	0.05 mg/L	
	Constituents for detection monitoring (total lead)	Yes	40 CFR 258, App. I EPA 1993c
	List of hazardous inorganic and organic constituents	Yes	40 CFR 258, App. II EPA 1993c
	Identification and Listing of Hazardous Waste	0.15 mg/L (maximum for any single composite sample TCLP)	40 CFR 261.3 EPA 1992
	Definition of hazardous waste--generic exclusion levels for K061 and K062 nonwastewater HTMR residues		
	Exclusions	Yes	40 CFR 261.4 EPA 1980b
	Special requirements for hazardous waste generated by conditionally exempt small quantity generators	Yes	40 CFR 261.5 EPA 1986c
	Requirements for recyclable materials	Yes	40 CFR 261.6 EPA 1985d

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
	Toxicity characteristic; maximum concentration of contaminants for the toxicity characteristic (Hazardous Waste No. D008)	5.0 mg/L	40 CFR 261.24, Table 1 EPA 1990c
	temporary suspension of toxicity characteristic rule for specified lead-based paint debris	Yes	63 FR 70233 EPA 1998d
	Hazardous waste from specific sources—hazardous waste codes K046, K052, K065, K069, and K100	Yes	40 CFR 261.32 EPA 1981a
	Discarded commercial chemical products, off-species, container residues, and spill residues—hazardous waste codes P110, (tetraethyl lead), U144 (lead acetate), U145 (lead phosphate), and U146 (lead subacetate)	Yes	40 CFR 261.33 EPA 1980c
	Basis for listing hazardous waste—hazardous waste code F035, K002, K003, K005, K046, K048, K049, K051, K052, K061, K062, K064, K064, K065, K069, K086, and K100	Yes	40 CFR 261, App. VII EPA 1981b
	Hazardous constituents: lead lead compounds (not otherwise specified) lead acetate lead phosphate lead subacetate	Yes	40 CFR 261, App. VIII EPA 1988b
	Waste excluded under 40 CFR 260.20 and 260.22	Yes	40 CFR 261, App. IX EPA 1984d
	Standard for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities—		40 CFR 264.94 EPA 1982c
	Releases from solid waste management units; concentration limits (lead)	0.05 mg/L	
	Groundwater monitoring list (lead)	Yes	40 CFR 264, Appendix IX EPA 1987a
	Reference air concentration lead tetraethyl lead	9.0E-02 $\mu\text{g}/\text{m}^3$ 1.0E-04 $\mu\text{g}/\text{m}^3$	40 CFR 266, App. IV EPA 1991c
	Health-based limits for exclusion of waste-derived residues—TCLP extract concentration limits for metals (lead)	5 mg/L	40 CFR 266, App. VII EPA 1991c
	Land Disposal Restrictions— Definitions	Yes	40 CFR 268.2 EPA 1990d
	Waste specific prohibitions—Third third waste (hazardous waste codes)	Yes	40 CFR 268.35 EPA 1990e

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information		References
<u>NATIONAL</u> (cont.)				
	Treatment standards for hazardous waste expressed as concentrations in waste extract or expressed as specified technologies	Yes		40 CFR 268.40 EPA 1994h
	Technology codes and description of technology-based standards	Yes		40 CFR 268.42 EPA 1994i
	Universal treatment standards (lead)	<u>Wastewater</u> (mg/L) 0.69	<u>Nonwastewater</u> (mg/L) 0.37 (TCLP)	40 CFR 268.48 EPA 1994j
	Metal bearing waste prohibited from dilution in a combustion unit according to 40 CFR 268.3(c)	D008, K069, K100, P110, and U145		40 CFR 268, App. XI EPA 1996d
EPA OERR	Designation, Reportable Quantities, and Notification—List of hazardous substances and reportable quantities	Yes		40 CFR 302.4 EPA 1989a
	Reportable Quantity Adjustment for Lead Metal, Lead Compounds, Lead-containing Hazardous Wastes, and Methyl Isocyanate-Final rule (40 CFR 117, 302, and 355)	<u>Statutory RQ</u> lbs.	<u>Final RQ</u> lbs. (kg)	58 FR 35314 EPA 1993f
	lead	1	10 (4.54)	
	lead acetate	5,000	10 (4.54)	
	lead arsenate	5,000	1 (0.454)	
	lead and compounds	1	not assigned	
	lead chloride	5,000	10 (4.54)	
	lead fluoroborate	5,000	10 (4.54)	
	lead fluoride	1,000	10 (4.54)	
	lead iodide	5,000	10 (4.54)	
	lead nitrate	5,000	10 (4.54)	
	lead phosphate	1	10 (4.54)	
	lead stearate	5,000	10 (4.54)	
	lead subacetate	1	10 (4.54)	
	lead sulfate	5,000	10 (4.54)	
	lead sulfide	5,000	10 (4.54)	
	lead thiocyanate	5,000	10 (4.54)	
	tetraethyl lead	100	10 (4.54)	
	Toxic chemical release reporting; Community right-to-know	Yes		40 CFR 372.65 EPA 1988a
EPA OPPTS	Lead-based Paint Poisoning Prevention In Certain Residential Structures	Yes		40 CFR 745 (61 FR 9064) EPA 1996e
	Title IV-Lead Exposure Reduction	Yes		Toxic Substance Control Act (TSCA)--. PL 102-550 U.S. Congress 1992a

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
NATIONAL (cont.)			
EPA/HUD	Residential Lead-Based Paint Hazard Reduction Act of 1992-42 U.S. Code 4852d	Yes	Housing and Community Development Act of 1992, Title X U.S. Congress 1992b
	Lead-Based Paint Poisoning and Prevention Act of 1992- 42 U.S. Code 4822		
HUD	Requires testing and elimination of lead-based paint in federally funded housing and housing rehabilitation programs, public housing, and Indian housing	Yes	HUD 1987a, 1987b
	Action level for lead-based paint	1 mg/m ³ (XRF) or 1 mg/cm ² (AAS or ICP-AES)	HUD 1987a, 1987b
Guidelines:			
a. Air:			
ACGIH	TLV TWA lead elemental and inorganic as Pb lead arsenate lead chromate as Pb	0.05 mg/m ³ 0.15 mg/m ³ 0.05 mg/m ³	ACGIH 1998
NIOSH	REL	<0.1 mg/m ³	NIOSH 1994
OAQPS	NAAQS	1.5 µg/m ³	40 CFR 50.12 EPA 1987d
b. Water:			
EPA ODW	Maximum Contaminant Level Goals (MCLGs) for Inorganic contaminants	0 mg/L	40 CFR 141.51 EPA 1985g
EPA OWRS	Ambient Water Quality Criteria for Protection of Human Health Ambient Water Quality Criteria for Protection of Aquatic Organisms	50 µg/L	45 FR 79318 EPA 1980d
	Freshwater:		50 FR 30784 EPA 1985f
	Acute (1-hour average)	82 µg/L	
	Chronic (4-day average)	3.2 µg/L	
	Marine		
	Acute (1-hour average)	140 µg/L	
	Chronic (4-day average)	5.6 µg/L	
c. Other:			
ACGIH	Biological Exposure Indices In blood	30 µg/100 mL	ACGIH 1998
	Cancer Classification		
	Elemental lead and inorganic as Pb	A3 ^d	
	Lead chromate as Pb	A2 ^e	
CDC	Blood lead level of concern in children	10 µg/dL	CDC 1991

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>NATIONAL</u> (cont.)			
EPA	RfD	No data ^f	IRIS 1999
	Cancer classification (inorganic lead)	Group B2	
	Unit risk (inhalation)	No data	
	Unit risk (oral)	No data	
NIOSH	Recommended worker blood level to be maintained through air concentrations	<0.060 mg Pb per 100 grams of whole blood	NIOSH 1997
NTP	Cancer classification may reasonably be anticipated to be carcinogens	lead acetate and lead phosphate	NTP 1998
OSHA	Blood lead level of concern (all occupations; including the construction industry)	40 µg/dL	29 CFR 1910.1025 OSHA 1995 and 29 CFR 1926.62 OSHA 1998
	Medical Removal	50 µg/dL	
<u>STATE</u>			
Regulations and Guidelines:			
a. Air:	<u>Acceptable Ambient Air Concentrations</u>		NATICH 1992
	Lead Acetate		
MA	24-hour	6.80E+03 µg/m ³	
ND	NA	0.00 BACT	
NY	1-year	3.00E-02 µg/m ³	
	Lead Arsenate		
TX	30-min.	2.00E-02 µg/m ³	
	Annual	2.00E-03 µg/m ³	
WA-SWEST	24-hour	5.00E-01 µg/m ³	
	Lead Chromate		
CT	8-hour	5.00E-01 µg/m ³	
ND	NA	0.00 BACT	
NV	8-hour	1.00E-03 mg/m ³	
TX	30-min.	1.20E-01 µg/m ³	
	Annual	1.20E-02 µg/m ³	
VA	24-hour	5.00E-01 µg/m ³	
WA-SWEST	24-hour	2.00E-01 µg/m ³	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
STATE (cont.)			
AZ	Lead Oxide		
	1-hour	4.50 $\mu\text{g}/\text{m}^3$	
	24-hour	1.50 $\mu\text{g}/\text{m}^3$	
ND	Lead Phosphate		
	NA	0.00 BACT	
CT	Lead Powder		
	8-hour	3.00 $\mu\text{g}/\text{m}^3$	
FL-Pinella	8-hour	1.5 $\mu\text{g}/\text{m}^3$	
	24-hour	3.60E-01 $\mu\text{g}/\text{m}^3$	
	Annual	9.00E-02 $\mu\text{g}/\text{m}^3$	
KS	Annual	3.57E-01 $\mu\text{g}/\text{m}^3$	
MA	24-hour	1.40E-01 $\mu\text{g}/\text{m}^3$	
	Annual	7.00E-02 $\mu\text{g}/\text{m}^3$	
ND	Lead Powder		
	8-hour	7.00E-02 $\mu\text{g}/\text{m}^3$	
NV	8-hour	1.50E-03 mg/m^3	
PA-Phil	1-year	4.00E-03 mg/m^3	
	Annual	1.5 $\mu\text{g}/\text{m}^3$	
VA	24-hour	1.5 $\mu\text{g}/\text{m}^3$	
VT	3-month	2.5 $\mu\text{g}/\text{m}^3$	
		1.5 $\mu\text{g}/\text{m}^3$	
MA	Lead Subacetate		
	24-hour	1.40E-01 $\mu\text{g}/\text{m}^3$	
	Annual	1.00E-02 $\mu\text{g}/\text{m}^3$	
FL-Ftldle	Lead2 Arsenate		
	8-hour	1.50E-03 mg/m^3	
FL-Tampa	8-hour	1.50E-03 mg/m^3	
	1-year	5.00E-01 $\mu\text{g}/\text{m}^3$	
SC	24-hour	7.50E-01 $\mu\text{g}/\text{m}^3$	
TX	30-min.	1.5 $\mu\text{g}/\text{m}^3$	
	Annual	1.50E-01 $\mu\text{g}/\text{m}^3$	
CT	Lead3 Arsenate		
	8-hour	3.00 $\mu\text{g}/\text{m}^3$	
ND	8-hour	1.50E-03 mg/m^3	
	8-hour	4.00E-03 mg/m^3	
NV	8-hour	5.00E-01 $\mu\text{g}/\text{m}^3$	
NY	1-year	2.5 $\mu\text{g}/\text{m}^3$	
SC	Lead4 Arsenate		
	24-hour	7.50E-01 $\mu\text{g}/\text{m}^3$	
AZ	Tetraethyl Lead		
	1-hour	2.50 $\mu\text{g}/\text{m}^3$	
	24-hour	5.90E-01 $\mu\text{g}/\text{m}^3$	
CT	8-hour	1.5 $\mu\text{g}/\text{m}^3$	
FL-Pinella	8-hour	7.50E-01 $\mu\text{g}/\text{m}^3$	
	24-hour	1.80E-01 $\mu\text{g}/\text{m}^3$	
	Annual	1.00E-04 $\mu\text{g}/\text{m}^3$	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
STATE (cont.)			
IN	8-hour	5.0 $\mu\text{g}/\text{m}^3$	
ND	8-hour	1.00E-03 mg/m ³	
NV	8-hour	2.00E-03 mg/m ³	
OK	24-hour	1.00 $\mu\text{g}/\text{m}^3$	
TX	30-min.	7.50E-01 $\mu\text{g}/\text{m}^3$	
	Annual	7.50E-02 $\mu\text{g}/\text{m}^3$	
VA	24-hour	1.7 $\mu\text{g}/\text{m}^3$	
WA-SWEST	24-hour	3.00E-01 $\mu\text{g}/\text{m}^3$	
	Tetramethyl Lead		
CT	8-hour	1.50 $\mu\text{g}/\text{m}^3$	
FL-Pinella	8-hour	7.50E-01 $\mu\text{g}/\text{m}^3$	
	24-hour	1.80E-01 $\mu\text{g}/\text{m}^3$	
ND	8-hour	1.50E-03 mg/m ³	
NV	8-hour	4.00E-03 mg/m ³	
TX	30-min.	7.50E-01 $\mu\text{g}/\text{m}^3$	
	Annual	7.50E-02 $\mu\text{g}/\text{m}^3$	
VA	24-hour	2.50 $\mu\text{g}/\text{m}^3$	
WA-SWEST	24-hour	5.00E-01 $\mu\text{g}/\text{m}^3$	
	<u>Designated as a hazardous air pollutant and subject to regulations</u>		CELDS 1990b
Iowa		Yes	
Montana		Yes	
Utah		Yes	
	<u>Ambient air emissions limitations for Class I areas</u>		CELDS 1990a
Kentucky	(3-month)	0.1 $\mu\text{g}/\text{m}^3$	
Montana	(24-hour)	0.1 $\mu\text{g}/\text{m}^3$	
	<u>Permit required to construct and operate an air contamination source project if yearly emissions exceed</u>		CELDS 1990a
Arizona		0.6 ton	
Connecticut		0.6 ton	
Missouri		0.6 ton	
New York		0.6 ton	
Virginia		0.6 ton	
	<u>Prevention of significant deterioration: Sources exempt from air monitoring requirements if net emissions increase is:</u>		CELDS 1990a
Delaware	(24-hour average)	<0.1 $\mu\text{g}/\text{m}^3$	
Louisiana	(24-hour average)	<0.1 $\mu\text{g}/\text{m}^3$	
Oregon	(24-hour average)	<0.1 $\mu\text{g}/\text{m}^3$	
Wisconsin	(24-hour average)	<0.1 $\mu\text{g}/\text{m}^3$	
b. Water:	<u>Drinking water quality guidelines and standards (Lead)</u>		FSTRAC 1995
AL	Standard	20 $\mu\text{g}/\text{L}$	
AZ	Standard	50 $\mu\text{g}/\text{L}$	
IL	Standard (source water)	50 $\mu\text{g}/\text{L}$	
ME	Guideline	20 $\mu\text{g}/\text{L}$	
MN	Guideline	20 $\mu\text{g}/\text{L}$	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>STATE (cont.)</u>			
	<u>MCL in drinking water</u>		
AL		0.02 mg/L	CELDS 1990a
IA		0.05 mg/L	CELDS 1990b
TX		0.05 mg/L	CELDS 1990a
AZ	Permit requirement for operation of stationary source emitting	>5 tons/year	CELDS 1990a
CA	Toxic materials limitations objectives for protection of marine aquatic wildlife		CELDS 1990b
	6-month median	2 µg/L	
	Daily maximum	8 µg/L	
	Instantaneous maximum	20 µg/L	
IA	Surface water quality criteria		IAC 1986a
	Class B waters ⁹	0.1 mg/L	
	Class C waters ^h	0.05 mg/L	
IL	Water quality standards		IEPA 1988a
	General use	100 µg	
	Public and food processing water supply	50 µg	
	Lake Michigan	50 µg	
	Secondary contact and indigenous aquatic life	100 µg	IEPA 1988b
	General effluent standards	0.2 mg/L	
IN	Constituent comprising groundwater protection standards	Yes	CELDS 1990b
KY	Domestic water supply source criteria	0.05 mg/L	401KAR 5:03 NREPC 1987
	Maximum groundwater contaminant level	0.05 mg/L	401KAR 30:020
	Significant emission levels of toxic air pollution	3.83x10 ⁻⁵ pounds/hour	NREPC 1988 401KAR 63:021
	Interim primary drinking water standards	0.05 mg/L	NREPC 1986 401KAR 35:31NREPC 1988
NY	Effluent standards: Maximum allowable concentrations into saturated or unsaturated zones	0.05 mg/L	CELDS 1990a
	Allowable concentration limits for Class GA waters	0.025 mg/L	CELDS 1990a
NV	Water quality criteria		CELDS 1990b
	Irrigation	<5.0 mg/L	
	Watering of livestock	<0.1 mg/L	
	Propagation of wildlife	<0.1 mg/L	
	Municipal or domestic water supply	0.05 mg/L	
	<u>Ground water standards</u>		
NM		0.05 mg/L	CELDS 1990b
UT		0.05 mg/L	CELDS 1990a

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
STATE (cont.)			
WI	Public health groundwater quality standards: Enforcement standard Preventative action limit	50 µg/L 5 µg/L	WAC 1985
c. Other:			
CA	Chemical parameter for leachate monitoring	Yes	CELDS 1990b
IA	Land application of sludge and solid waste from publicly owned treatment center: No permit required if lead level does not exceed	1,000 mg/kg	IAC 1986b
KY	Defined as hazardous waste	Yes	401KAR 31:040 NREPC 1988
	<u>Fish and Shellfish Advisories</u>	<u>Number of Advisories Issued</u>	EPA 1998f
AS	Marine	1	
HI	Freshwater	1	
LA	Freshwater	1	
MO	Freshwater	2	
OH	Freshwater	4	
TN	Freshwater	1	
	<u>States with Adult Blood Lead Level Registries</u>	<u>Reporting Level (µg/dL)</u>	
AL	Alabama Department of Public Health, Division of Epidemiology	15	
AZ	Arizona Department of Health, Office of Environmental Health	10	
CA	California Department of Health Services Occupational Lead Poisoning Prevention Program	25	
CO	Colorado Department of Health	25 (< 18 years) 10 (18 years or older)	
CT	Connecticut Department of Health, Environmental Epidemiology & Occupational Health	10	
FL	Florida Department of Health and Rehabilitative Service	10	
GA	Epidemiology and Prevention Branch	10	
IN	Indiana State Department of Health Epidemiology Resource Center	None	
IA	Iowa Department of Public Health, Bureau of Environmental Health, State Lead Coordinator	All Levels	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
<u>STATE</u> (cont.)			
KY	Kentucky Injury Prevention and Research Center, Occupational Injury Prevention Program Manager	25	
ME	Maine Bureau of Health, Occupational Health Program	25	
MD	Maryland Department of the Environment, Office of Environmental Health Coordination	25 (18 years or older)	
MA	Massachusetts Department of Labor & Industries, Division of Occupational Hygiene	15	
MI	Michigan Department of Community Health, Childhood lead Poisoning Prevention Project	All Levels	
MN	Minnesota Department of Health	All Levels	
MS	Missouri Department of Health, Lead Poisoning Program	25	
NE	Department of Health & Human Service	10	
NH	Department of Health and Human Services, Public Health Services, Bureau of Risk Assessment	All Levels	
NJ	New Jersey Department of Health, Occupational Disease Prevention Program	25	
NM	New Mexico Department of Health, Division of Epidemiology, Evaluation & Planning	All Levels	
NY	New York State Department of Health	All Levels	
NC	Department of environmental Health & Natural Resources, Occupation Health Section/Epidemiology Division	40	
OH	Ohio State Department of Health	All Levels	
OK	Oklahoma State Department of Health, Maternal and Child Health	10	
OR	Oregon Health division	25 (>18 years) 10 (<18 years)	
PA	Pennsylvania Department of Health, Division of Environmental Health Assessment	15 or more (≤ 6 years) 25 or more (>6 years and pregnant females)	
RI	Rhode Island Department of Health, office of Occupational and Radiological Health	25	

7. REGULATIONS AND ADVISORIES

Table 7-1. Regulations and Guidelines Applicable to Lead (continued)

Agency	Description	Information	References
STATE (cont.)			
SC	Department of Health & Environmental Control, Division of Health Hazard Evaluations	40 (>6 years) 10 (≤6 years)	
TX	Texas Department of Health, Bureau of Epidemiology	40	
UT	Utah Department of Health, Bureau of Epidemiology	15	
VT	Vermont Department of Health, Division of Epidemiology and Health Promotion	10 (>6 years) All Levels (≤6 years)	
WA	Washington State Department of Labor & Industries, Safety & Health Assessment & Research Program	All Levels	
WI	Division of Health, Bureau of Public Health	10 or more	
WY	Wyoming Department of Health	All Levels	

^a Group 2B: Possible Human Carcinogen

^b Group 3: Not classifiable as to their carcinogenicity to humans

^c Final Draft of Air Quality Criteria Document (600/8-83-028F) declines to derive an air quality criterion for lead.

^d A3: Animal carcinogen; carcinogenic in experimental animals at a relatively high dose that is not considered relevant to worker exposure.

^e A2: Suspected human carcinogen; carcinogenic in experimental animals at dose levels that are considered relevant to worker exposure.

^f Interested parties are referred to the 1986 Air Quality Criteria for Lead (EPA-600/8-83/028a-dF) and its 1990 Supplement (EPA/600/8-89/049F)

^g Protected for wildlife, fish, aquatic and semiaquatic life and secondary contact water uses

^h Protected as a raw water source of potable water supply

AAS = atomic absorption spectroscopy; ACGIH = American Conference of Governmental-Industrial Hygienists; ADI = Acceptable Daily Intake; BACT = Best Available Control Technology; BAT = Best Available Technology Economically Achievable; BPT = Best Practicable Control Technology Currently Available; CDC = Centers for Disease Control; CNS = central nervous system; CPSC = Consumer Product Safety Commission; dL = deciliter; dscm = dry cubic meter at standard conditions; EPA = Environmental Protection Agency; FDA = Food and Drug Administration; gpg = grams per gallon; gr/dscf = grains/dry cubic feet at standard conditions; HUD = Department of Housing and Urban Development; IARC = International Agency for Research on Cancer; ICP-AES = Inductively Coupled Plasma-Atomic Emission Spectroscopy; MCL = Maximum Contaminant Level; MCLG = Maximum Contaminant Level Goal; NAAQS = National Ambient Air Quality Standard; NAS = National Academy of Sciences; NIOSH = National Institute for Occupational Safety and Health; NSPS = New Source Performance Standards; OAQPS = Office of Air Quality Planning and Standards; ODW = Office of Drinking Water; OAR = Office of Air and Radiation; OERR = Office of Emergency and Remedial Response; OSHA = Occupational Safety and Health Administration; OSW = Office of Solid Wastes; OTS = Office of Toxic Substances; OWRS = Office of Water Regulations and Standards; PEL = Permissible Exposure Limit; REL = Recommended Exposure Limit; PSES = Performance Standards Existing Sources; PSNS = Performance Standards New Sources; RfC = Reference Concentration; RfD = Reference Dose; SDWA = Safe Drinking Water Act; TLV = Threshold Limit Value; TWA = Time-Weighted Average; WHO = World Health Organization; XRF = X-Ray Fluorescence